A. Michelson occupied the chair. The meeting was well attended, members coming not only from the vicinity of Chicago, but also from points in Kansas, Iowa, New York and Nebraska, more than five hundred miles distant.

A resolution was adopted urging upon the council the desirability of holding a regular yearly meeting in Chicago or some other suitable point in the middle west.

The following papers were presented:

JOHN E. ALMY, University of Nebraska: 'Spark Discharges in Gases and Vapors.'

BRUCE V. HILL, University of Kansas: 'On the Magnetic Behavior of Certain Alloys of Nickel.'

FREDERICK E. KESTER, Ohio State University: 'An Experimental Gyroscope for Quantitative Work.'

R. A. MILLIKAN and GEORGE WINCHESTER, University of Chicago: 'Upon the Discharge of Electrons from Ordinary Metals under the Influence of Ultra-violet Light.'

A. B. PORTER, Chicago: 'An Inanimate Demon.'

A. B. PORTER, Chicago: 'On Multiple Crossed Gratings.'

A. A. MICHELSON, University of Chicago: 'On the Ruling of Diffraction Gratings.'

H. G. GALE, University of Chicago: 'The Effect of Temperature on Metallic Spectra.'

C. E. MENDENHALL and L. R. INGERSOLL, University of Wisconsin: 'The Radiation Constants and Temperature of the Nernst Glower.'

K. E. GUTHE and C. L. VON ENDE, University of Iowa: 'Standard Cells.'

F. L. BISHOP, Bradley Polytechnic Institute: 'Heat of Dilution.'

LAWRENCE E. GURNEY, University of Idaho: 'The Viscosity of Water at Low Rates of Shear.' Introduced by A. A. Michelson.

FREDERICK E. KESTER, Ohio State University: 'The Bridge Method for Comparison of Condensers.'

A. H. TAYLOR, University of Wisconsin: 'A Method for the Determination of Electrolytic Resistance and Capacity.'

C. F. LORENZ, Johns Hopkins University: 'On the Effects of the Electrical Discharge on the Acetylene Flame.'

WM. R. BLAIR, University of Chicago: 'Change of Phase due to the Passage of Electric Waves Through Thin Films and the Index of Refraction of Water for Such Waves.'

WM. W. COBLENTZ, Bureau of Standards, Washington: 'The Temperature of the Moon.' (By Title.)

F. W. VERY: 'The Temperature of the Moon.' (By Title.)

ERNEST MERRITT, Cornell University: 'Note on the Fluorescence of Sodium Vapor.'

H. V. MCCOY and W. H. ROSS, University of Chicago: 'The Relation between Uranium and Radium.'

ERNEST MERRITT,
Secretary.

DISCUSSION AND CORRESPONDENCE.

'ELIMINATION' IN FIXING GENOTYPES.

TO THE EDITOR OF SCIENCE: The valuable article on this subject by Mr. Witmer Stone, in SCIENCE for November 2, contains a list of twenty-five systematists to whom certain problems were submitted. The names given are all those of well-known workers in the United States, and I wondered why Mr. Stone had made no attempt to obtain the opinions of his foreign colleagues. The reason was found in the penultimate paragraph: "Elimination has never been practised in Europe and does not seem to be understood by foreign writers." Possibly it did not occur to Mr. Stone that, if foreign writers had never practised elimination, it might have been because they had always shared his unfavorable opinion of the method, and not from any lack of intelligence. The statement, however, is incorrect; at least some of us in the British Museum, who assuredly did not get our training in systematic zoology from any other part of the world, have always practised elimination when other principles, such as the fixing of a genotype by the author or the first reviser, did not intervene. I will accept Mr. Stone's assertion that we do not seem (to him) to understand the matter; but I hope to convince him that some of us do understand it at least as well as the majority of those who have replied to his questions. While reading his article I jotted down in the margin my answer to each question, and finished doing so before turning the page. The result was as follows: My answers to questions I, II, III, IV*b*, V*a*, V*b*, V*c*, VI, VII*a*, VII*b*, VIII*a*, that is to eleven out of thirteen questions, were in agreement with the majority. In VIII*b* there was no majority,

since 4 say 'sp. 4' and 4 say 'sp. 3'; I agree with the latter. In IV*a*, 7 say 1855, 8 say 1880, one says date when synonymy was first recognized: the answer depends on the meaning of the word 'removed'; if this be taken literally, the answer is 'either 1880 or any previous date when the synonymy may have been recognized'; but if we regard the spirit of the question, it will be obvious that when a genus is once established it includes all species congeneric with its genotype whether they have been 'removed' to it or no—therefore my answer was 1855. Ambiguity in this question may have been the cause of the equality of votes. In the case of question VI, the pronounced majority is perhaps due to ambiguity in the answer: what I say is that the reviser can not select as genotype of an early genus any species that is already genotype of a subsequent genus, so long as there remains any species free among the originally included species; therefore I wrote 'yes' to the first clause of the question, and 'no' to its second clause.

Adding my replies to those given, it appears that I agree with the majority, usually a large absolute majority, in twelve out of the thirteen cases, and that the thirteenth case, which is ambiguous, is a draw. After this Mr. Stone will probably admit that the method is understood by me, and he will perhaps accept my assurance that I am only an insignificant unit among a fairly large number of old-world writers of similar views and all provided with the small amount of intelligence required.

The considerable agreement attained by those who have answered his questions should prevent the wholesale condemnation of the elimination method; but it would add interest to the figures if we were told whether the minority was generally composed of the same writers. If so, they would probably yield only to *force majeure;* but if not, they might be brought into line by gentle argument.

Mr. Stone makes out a very strong case for the 'first species' method; but is he correct in saying that it 'can lead to but one result'? Would he kindly refer to *Annals and Mag. Nat. Hist.* (2), XVI., pp. 95, 96, and say what, on that method, is the genotype of *Hemipedina?*

F. A. Bather.

London, England,
November 12, 1906.

SPECIAL ARTICLES.

POLYEMBRYONY AND THE FIXING OF SEX.

Naturalists have long been familiar with certain curious and unexplained phenomena connected with the life histories of certain parasitic hymenopterous insects of the family Chalcididæ. DeGeer in 1752 figured a minute black species with dirty-white wings, which he reared from *minute cocoons* attached together side by side in the larva of one of the pear-leaf miners. Westwood, in the second volume of his Introduction, says of this insect: "The figure has somewhat the air of *Encyrtus;* but the pupæ are naked in that genus."

In the *American Naturalist* for February, 1882, in the second installment of an article entitled 'On some Curious Methods of Pupation among the Chalcididæ,' the writer described a precisely similar object found in the mines of an oak-leaf miner, *Lithocolletis fitchella,* at Washington and bred from it a number of specimens of an encyrtid of the genus *Copidosoma.* He further described somewhat similar cocoon-like formations within the larval skin of the pine-leaf miner, *Gelechia pinifoliella;* also in the skin of the larva of the twig borer, *Anarsia lineatella,* in the larva val skin of the pine-leaf miner, *Gelechia pinisolidaginis*), and finally described at some length the strange habits of a congeneric parasite which attacks the larva of *Plusia brassicæ.* The latter was described as follows:

The *Plusia* larva, up to the time of commencing to spin, appeared quite healthy, although perhaps a little sluggish. Then suddenly its torpor increased, and through the semitransparent skin were seen hundreds of small white parasitic larvæ. In two days at the most the host was dead, having perhaps partially finished its cocoon, while its entire body was completely packed with the parasitic larvæ or pupæ, each surrounded by a cocoon-like cell. A cross-section of the host at this stage showed a regular honeycombed structure. After remaining in the pupal state not longer than twenty days, the chalcidids com-